

### **REMARKS**

Applicant expresses appreciation to the Examiner for consideration of the subject patent application. This amendment is in response to the Office Action mailed August 4, 2005. Claims 10 and 12-29 were allowed or indicated as allowable. Claims 1-9 and 11 were rejected.

Claims 1-6 and 8-32 remain in the application. Claims 1-29 were originally presented. Claim 7 has been canceled without prejudice. Claims 1, 9, 12, and 21 have been amended.

Claim 9 has been amended to be consistent with the amendment to claim 1, without narrowing the scope thereof, not for any reason related to patentability and not due to any rejection. Claim 12 has been amended for clarity, without narrowing the scope thereof, and not due to any rejection in light of prior art. Claim 21 has been amended for clarity, not for any reason related to patentability, without narrowing the scope thereof, and not due to any rejection.

New claims 30-32 have been added. Support for new claim 30 is found in original claim 1. Support for new claim 31 is found in original claims 1 and 12, and in the specification at page 3, lines 23-25; and page 7, lines 25-28. Support for new claim 32 is found in original claims 1 and 10.

The indication of allowable claims 21-29, and the indication of allowable subject matter in claims 10 and 12-20, if rewritten in independent form, is acknowledged with appreciation. Therefore, new claim 32 is similar to original claim 1 with the allowable subject matter of allowable claim 10. Claim 12 has been amended to be allowable. (No prior art rejections were raised with respect to claims 12-20.)

### **Claim Rejections - 35 U.S.C. § 112**

Claims 1 and 12 were rejected under § 112, 2nd paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Therefore, independent claim 1 has been amended to clarify the specified language, and claim 12 has been amended to remove the specified language. (Applicant respectfully submits that the limitation of "the vacuum tight assembly being capable of withstanding a temperature greater than approximately 250 degrees Celsius" is a positive limitation that is not optional, and is applicable to either manufacturing or use. Nevertheless, claim 1 and new claim 31 recite that the vacuum tight assembly is configured to withstand, rather than being capable of

withstanding, a temperature greater than approximately 250 degrees Celsius during manufacture, as opposed to during use.)

#### **Claim Rejections - 35 U.S.C. § 102**

Claims 1-4, 6 and 11 (including independent claim 1) were rejected under 35 U.S.C. § 102(b) as being anticipated by Allred.

The Allred reference fails to disclose a polyimide adhesive adhering the film to a support with a nickel material. (As stated in the Office Action, Allred does not disclose that the adhesive is a polyimide. Paragraph 13.)

In contrast, independent claim 1 sets forth:

"the support including a nickel material and the adhesive including a polyimide configured to chemically react with the nickel material of the support to form covalent bonds."

Therefore, Applicant respectfully submits that claim 1 is allowable over the Allred reference, and urges the Examiner to withdraw the rejection. Dependent claims 2-4, 6 and 11 are allowable for at least their dependence on an allowable independent claim.

#### **Claim Rejections - 35 U.S.C. § 103**

Claims 5 and 7-9 were rejected under 35 U.S.C. § 103 as being unpatentable over Allred in view of Yoshida.

Claim 7 has been canceled. Claims 5, 8 and 9 are allowable for at least their dependence upon allowable independent claim 1.

Independent claim 1 sets forth:

" the vacuum tight assembly being configured to withstand a temperature greater than approximately 250 degrees Celsius during manufacturing; and the support including a nickel material and the adhesive including a polyimide configured to chemically react with the nickel material of the support to form covalent bonds."

As described in the specification of the present invention, the polyimide adhesive can react chemically with the nickel to form covalent bonds to hold the adhesive to the support. See page 5, lines 1-15. In the present invention as claimed, the polyimide is bonded to nickel. The

ladder polymer, polyimide, can have a nick in one of the parallel main chains, and this nick will expose chemically active nitrogen or oxygen atoms, which are the two most electronegative chemical elements, which make strong ionic bonds to nickel. Ionic bonds have energies up to 1100 kJ/mol, whereas the Lewis-acid bonds, hydrogen bonds, and van der Waals forces have energies less than 100 kJ/mol. Thus, the polyimide can have much stronger bonds to nickel than other polymers can to nickel. The heat treatment claimed in the present invention is believed to yield the strongest possible joint.

Simply using a polyimide adhesive as a glue for combining mechanical structures, as in Allred and Yoshida, does not produce the desired hermetically sealed, mechanically stable tube. Yoshida does not propose a curing temperature sufficient to rigidly hold the metal parts together, and thus adds a ring and screws to hold the structure together (which results in a protrusion above the window that can hinder the placement of any large sample close to the window for counting or radiation). Yoshida teaches away from a higher temperature cure by specifically teaching a lower temperature cure and to supplement the adhesive with a mechanical ring. Allred fails to teach or suggest curing any adhesive.

Therefore, Applicant respectfully submits that claims 5, 8 and 9 are allowable for at least their dependence on allowable claim 1.

## CONCLUSION

In light of the above, Applicant respectfully submits that pending claims 1-6 and 8-32 are in condition for allowance. Therefore, Applicant requests that the rejections and objections be withdrawn, and that the claims be allowed and passed to issue. If any impediment to the allowance of these claims remains after entry of this Amendment, the Examiner is strongly encouraged to call Garron M. Hobson at (801) 566-6633 so that such matters may be resolved as expeditiously as possible.

Check No. ~~23584~~, in the amount of \$150.00, is enclosed for two additional claims in excess of twenty and one additional independent claim in excess of three. Three claims were added (claims 30-32), including one independent claim (claim 32), while one claim was canceled (claim 7).

The Commissioner is hereby authorized to charge any additional fee or to credit any overpayment in connection with this Amendment to Deposit Account No. 20-0100.

DATED this 4<sup>th</sup> day of November, 2005.

Respectfully submitted,



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